



DATE: October 27, 2021

AGENDA ITEM # 2

TO: Complete Streets Commission

FROM: Marisa Lee, Transportation Services Manager

SUBJECT: Cuesta Drive-Arboleda Drive Traffic Calming Project – Post Construction Update

ATTACHMENTS: Speed Table Survey Data

RECOMMENDATION:

Receive update and provide bicyclist- and pedestrian-related feedback on the redesign of the Cuesta Drive-Arboleda Drive Traffic Calming Project

INTRODUCTION

The Cuesta Drive-Arboleda Drive traffic calming project was implemented in the Summer 2020 following an extensive one-year community outreach process. Since completion of the construction project, public input on the Cuesta Drive speed tables has varied. Residents have noted significantly reduced vehicle speed and increased bicycle and pedestrian comfort, while commuters on the corridor have expressed concerns regarding the height of the speed tables having an impact on vehicles and motorists.

During the April 28, 2021 Complete Streets Commission meeting the commission advised staff to implement additional signage & striping measures to help improve visibility of the speed tables and to continue data collection efforts. The City commissioned topographic surveys of the Cuesta Drive speed tables to get an accurate measurement of height and conducted additional traffic data collection summarized in this report, see Exhibit A.

Cut-through traffic continues to be topic of concern from residents living on streets adjacent to Cuesta Drive. New traffic data collected this Fall on streets adjacent to Cuesta Drive is discussed within this report.

BACKGROUND

The original Cuesta Drive traffic calming concept design included raised intersections at Cuesta Drive & Campbell Avenue and Cuesta Drive & S Clark Avenue. Upon initiation of the design phase, residents and policy officials expressed concerns regarding the effectiveness and character change of the neighborhood from the proposed raised intersection treatments. A new traffic calming planning phase was initiated in the Spring of 2019, over the next 12 months the City and its consultant design team (Alta Planning + Design) worked with residents to identify an alternative traffic calming program that includes the installation of the following traffic calming elements, all installed in the Fall of 2020:

Cuesta Drive:

- 5 Speed Tables (Street Length x 20' Wide)
- New All-way STOP at Cuesta Drive & S Clark Avenue
- New Pedestrian Pathway along North Side of Cuesta Drive between S Clark Avenue and Campbell Avenue

Arboleda Drive

- 7 Speed Humps (Street Length x 12' Width)
- New All-Way STOP at Arboleda Drive & Campbell Avenue

Additional Traffic Calming Elements:

- High visibility crosswalks and warning signage
- Painted Intersection Returns at Cuesta Drive & Arboleda Drive and Arboleda Drive & Springer Road

During the construction phase the Cuesta Drive speed tables were adjusted from a planned 3.5-inch height to a targeted 4.25-inch height following community input on construction of the first two speed tables not being sufficient to change driver behavior on the street. In addition, the contractor's field crews were experimenting with construction methods to properly build the speed tables to better match the design elements of the project. City staff agreed with residents regarding the ineffectiveness of the speed tables at the designed 3.5-inch height and worked with the contractor to identify a better height through field experimentation. Thus, a 4.25-inch target height was identified to achieve the designed 15-MPH drive speed discussed with the community during the planning phase.

Over the Summer of 2021 the following additional modifications were made to the Cuesta Drive speed tables following the Complete Streets Commission's April input and subsequent City Council input on July 13, 2021:

- 12" White Borders on each Cuesta Drive approach
- 2nd set of Chevron Pavement Arrows on each side of the Cuesta Dr Speed Tables
- 2nd set of "Speed Hump" and "15 MPH" signs on each side of the Cuesta Dr Speed Tables

The City also commissioned a land surveyor to survey each of the Cuesta Dr speed tables to accurately measure the height of each speed table. Additional vehicle speed and volume data on and along streets surrounding Cuesta Drive was collected to help measure the ongoing effectiveness of the Cuesta Dr speed tables and Arboleda Ave speed humps and any impacts to adjacent neighborhood streets.

DISCUSSION

The height of the Cuesta Dr speed tables has been one of the primary concerns of residents and commuters that use Cuesta Dr. The speed tables were constructed with the goal of reaching a 4.25-inch height at the crown of the street and to provide “flat” top on the speed tables to help achieve vehicle speed reductions to 15 MPH. The Cuesta Dr street cross-section varies in height due to the age and lack of curb & gutter facilities on the street, the height of the sides of the speed tables near the edge lines or shoulder of Cuesta Dr vary as a result. Table 1 summarizes the height of each of the five (5) Cuesta Dr speed tables.

Table 1
Cuesta Drive Speed Table Survey Data

No.	Cuesta Dr Speed Table Location	Direction of Travel	Speed Table Height				
			South Edge	Center EB Lane	Center of Table	Center WB Lane	North Edge
1	331-338 Cuesta Drive Closest to El Monte Avenue	EB	9.0”	4.2”	3.6”	3.6”	9.12”
		WB		7.56”	7.2”	7.2”	
2	394-395 Cuesta Drive East of Arboleda Drive	EB	8.04”	4.32”	3.6”	4.56”	8.28”
		WB		6.72”	7.2”	6.84”	
3	454-455 Cuesta Drive West of Campbell Avenue	EB	6.36”	3.5”	3.6”	3.36”	6.96”
		WB		4.8”	6.0”	6.6”	
4	681-621 Cuesta Drive East of Clark Avenue	EB	7.8”	2.88”	2.4”	3.0”	7.32”
		WB		5.52”	6.0”	5.88”	
5	654-657 Cuesta Drive Closest to Springer Rd	EB	10.44”	3.48”	2.4”	3.24”	6.96”
		WB		5.88”	4.8”	4.56”	

All data shown is in Inches.

Table 1 shows that each of the speed tables on Cuesta Dr is constructed differently, this is common due to the construction method used of spreading and compacting asphalt. The south and north edges of the speed tables are the highest and contribute to the motorist’s experience and concern regarding abrupt height.

The center of each speed table in the eastbound direction (to Mountain View) of travel on Cuesta Drive are the lowest of the speed table heights while the center of the speed tables in the westbound direction (to Downtown Los Altos) is substantially higher.

The County of Santa Clara Fire Department, whom provides first responder service to the City of Los Altos, recommends a 3.0-inch height for speed humps. The Institute of Transportation Engineers (ITE) notes the common practice height for speed tables from between 3- and 4-inches and as high as 6-inches. If the speed tables are removed and replaced with asphalt, inconsistency in manual construction methods will make it extremely difficult to achieve a

uniform height given the irregularity in the pavement cross-section along Cuesta Dr due to the lack of curb & gutter facilities. The use of prefabricated rubber speed tables may help to address irregularities in manual construction methods. The drawback with prefabricated speed tables may be an increase in noise as vehicles travel over the speed tables as the lip of the rubber speed tables may not be flat on the roadway due to the grade of the street. The rubber curbs are available in 3- or 4-inch heights (3.5-inch not available), 3-inches is recommended to be as consistent as possible with the County's preferred height and is minimum ITE noted common practice.

The City plans to remove and replace the existing Cuesta Drive asphalt speed tables with the Traffic Logix Rubber Speed Tables. Rubber speed tables also offer the advantage of embedded reflective striping to help improve visibility--one of the concerns expressed by residents and commuters about the existing speed tables. Figure 1 illustrates the Traffic Logix brand rubber tables, the leading market unit.

Figure 1
Traffic Logix Rubber Speed Table Options
(Continuous Speed Table versus Speed Lump Options)



Continuous Speed Table Configuration



Speed Lump Configuration

Traffic Data

The City conducted traffic data collection again this Fall 2021 for all streets previously analyzed during the pre-project Planning Phase and initial Post Construction analysis in the Spring 2021. Tables 2, 3 and 4 show the 2019 (Planning) versus 2021 (Spring and Fall) changes in traffic patterns on street .

Table 2
Cuesta Drive Pre-Project vs Post Project Traffic Conditions

Cuesta Drive @	Volume - ADT					Speed (85%) - MPH				
	2019	2021S	2021F	% Change (2019 vs. 2021S)	% Change (2019 vs. 2021F)	2019	2021S	2021F	% Change (2019 vs. 2021S)	% Change (2019 vs. 2021F)
Clark Ave (EB)	4619	1999	2400	-57%	-48%	36.1	26.4	26.6	-27%	-26%
Clark Ave (WB)	4412	1943	2458	-56%	-44%	35.1	28.0	28.6	-20%	-19%
Arboleda Dr (EB)	4747	1951	2373	-59%	-50%	34.6	28.1	26.3	-19%	-24%
Arboleda Dr (WB)	4439	1891	2371	-57%	-47%	34.2	24.9	24.9	-27%	-27%

Table 3
Arboleda Drive Pre-Project vs Post Project Traffic Conditions

Arboleda Drive @	Volume - ADT					Speed (85%) - MPH				
	2019	2021S	2021F	% Change (2019 vs. 2021S)	% Change (2019 vs. 2021F)	2019	2021S	2021F	% Change (2019 vs. 2021S)	% Change (2019 vs. 2021F)
West of Campbell (EB)	265	115	174	-57%	-34%	31.4	23.4	22.1	-25%	-30%
West of Campbell (WB)	77	85	108	10%	40%	27.5	21.6	19.6	-21%	-29%
East of Campbell (EB)	293	76	113	-74%	-61%	33.8	23.6	20.1	-30%	-41%
East of Campbell (WB)	223	82	129	-63%	-42%	30.6	23.2	23.7	-24%	-23%

RECOMMENDATIONS

City staff recommends that the Complete Streets Commission review the Cuesta Dr speed table survey data and updated plan to replace the existing asphalt speed tables with the Traffic Logix rubber speed tables and provide design-feedback related to accommodating bicycles and pedestrians within the speed table corridor of Cuesta Drive. No modifications to the Arboleda Avenue speed humps are recommended at this time.

Staff intends to monitor traffic speed and flow for three months after the installation of the new speed tables and will return to this Commission for an evaluation. If it is determined the new speed tables are not achieving objectives, additional traffic calming measures can be considered.

Table 4
Surrounding Streets Pre-Project vs Post Project Traffic Conditions

Surround Cuesta Dr Neighborhood Streets	Volume - ADT					Speed (85%) - MPH				
	2019	2021S	2021F	% Change (2019 vs. 2021S)	% Change (2019 vs. 2021F)	2019	2021S	2021F	% Change (2019 vs. 2021S)	% Change (2019 vs. 2021F)
San Luis Ave (EB) West of El Monte Ave	135	64	118	-53%	-13%	25	24	27	-4%	8%
San Luis Ave (WB) West of El Monte Ave	124	60	104	-52%	-16%	28	24	26	-14%	-7%
Benvenue Ave (EB) West of Clark Ave	130	95	116	-27%	-11%	28	29	27	4%	-4%
Benvenue Ave (WB) West of Clark Ave	147	98	111	-33%	-24%	30	28	28	-7%	-7%
Paco Dr (EB) West of Clark Ave	87	85	114	-2%	31%	29	23	25	-21%	-14%
Paco Dr (WB) West of Clark Ave	141	86	129	-39%	-9%	29	24	26	-17%	-10%
Paco Dr (EB) East of Clark Ave	181	173	237	-4%	31%	31	31	29	0%	-6%
Paco Dr (WB) East of Clark Ave	262	153	200	-42%	-24%	33	29	29	-12%	-12%
S Clark Ave (NB) San Luis to Benvenue	751	396	551	-47%	-27%	29	28	28	-3%	-3%
S Clark Ave (SB) San Luis to Benvenue	742	420	539	-43%	-27%	30	29	29	-3%	-3%
Campbell Av (NB) N of Rosita Ave	1007	442	642	-56%	-36%	31	27	26	-13%	-16%
Campbell Av (SB) N of Rosita Ave	1254	528	750	-58%	-40%	33	27	26	-18%	-21%